

Troubleshooting

If your system appears not to be working as well as you expect, the following notes may be of some help.	Please read this manual together with all the manuals concerning the rest of your system.
Before investigating the cause of a problem, always switch off the system at the mains.	If, having attempted to resolve the problem, the trouble still persists, consult your dealer for assistance.
Please bear in mind that Home Theatre systems can be quite complex and there is often a variety of factors involved.	Do NOT try to remove any covers on the product or attempt to dismantle it in any way. There are no user serviceable parts inside and you will invalidate any warranty.

Symptom	Possible Cause
No Sound	System not switched on Wrong source selected
Sound lacks bass content Bass reproduction muddy or indistinct	Loudspeakers wired incorrectly Front speakers set to ‘Small’ with no subwoofer connected
Excessive bass distortion at low volume levels	Bass level set too high LFE level set too high
Excessive or distorted bass at high volume levels	System level set too high Front loudspeakers or subwoofer too close to room corners
Distorted or rattling sounds at high volume levels	System level set too high Objects placed on Front loudspeakers or subwoofer
Popping sounds or thumps from Front speakers or subwoofer	System level set too high LFE level set too high: Subwoofer level set too high
Indistinct sound Poor localisation of effects	One or more loudspeakers is out of phase (See the relevant pages of this manual for the correct connection procedure)
Television picture is distorted or there is colour distortion	Front loudspeakers or subwoofer too close to the TV. (Switch off the system and TV. Move loudspeaker away. Leave 15 mins. Switch on again)

Further help and advice

A wide range of AV and audio topics can be found at the Wharfedale web site.

[www.wharfedale.co.uk](http://www.wharfedale.co.uk)

Home Theatre is discussed in depth at the Dolby Laboratories web site.

[www.dolby.com](http://www.dolby.com)

The Digital Theater Systems web site is also full of interest and worth a visit.

[www.dtsonline.com](http://www.dtsonline.com)

Specifications and Service

	Crystal CR 8	Crystal CR 10	Crystal CR 20	Crystal CR 30	Crystal CR 40	Crystal CR CEN
Nominal Impedance	4 Ohms	4 Ohms	4 Ohms	4 Ohms	4 Ohms	4 Ohms
Recommended Amplifier Power	25-60 Watts	25 -100 Watts	25 -100 Watts	25 -100 Watts	30 -150 Watts	25 - 100 Watts
Sensitivity (1W@1 m)	84 dB	86 dB	86 dB	87 dB	88 dB	86 dB
Frequency Response	75 - 20 kHz	55 - 20 kHz	45 - 20 kHz	40 - 20 kHz	30 - 20 kHz	60 - 20 kHz
Bass Unit	101 mm	170 mm	170 mm	170 mm	170 mm	2 x 101 mm
Midrange Unit					170 mm Bass-Mid	
Treble Unit	25mm Textile	25mm Textile	25mm Textile	25mm Textile	25mm Textile	25mm Textile
Dimensions Overall						
H x W x D mm	220 x 180 x 155	295 x 210 x 225	330 x 235 x 225	850 x 235 x 225	1000 x 235 x 225	167 x 380 x 155
H x W x D inches	8.7 x 7.1 x 6.1	11.6 x 8.3 x 8.9	13.0 x 9.3 x 8.9	33.5 x 9.3 x 8.9	39.4 x 9.3 x 8.9	6.6 x 15.0 x 6.1

Wharfedale Crystal speakers are compatible with most currently available audio amplifiers

Authorised Wharfedale Service Centres

<b>UK</b> Wharfedale International Ltd. IAG House, Sovereign Court, Ermine Business Park, Huntingdon, Cambs PE29 6XU, England. Tel: +44 (0)1480 447700 Fax: +44 (0)1480 43176	<b>USA</b> IAG America, Inc. 15 Walpole Park South Walpole MA 02081 Tel: +1 508 850 3950	<b>CANADA</b> Karbon Trading Ltd 6800 Kitimat Road Units 19-20 Mississauga Ontario Tel: +1 905 567 1920
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For information on other authorised service centres worldwide contact Wharfedale International in the U.K.

A worldwide distributor list is available on the Wharfedale website: [www.wharfedale.co.uk](http://www.wharfedale.co.uk)

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Wharfedale has a policy of continuous product development and reserves the right to change specification without notice.  
Wharfedale is a member of the International Audio Group.

Crystal Series

Instruction Manual



Wharfedale

BRITAIN'S MOST FAMOUS LOUDSPEAKERS

## Wharfedale Crystal Series Installation and User Guide

### Introduction

The Wharfedale Crystal Series is a range of versatile loudspeakers using advanced materials and the latest precision drive units. The CR10 and 20 are small stand mounting loudspeakers. The CR30 and 40 are floor-standing models. The range includes a centre channel, CR CEN. The CR8 may be used as either surround sound speakers in Home Theatre applications, or as the main speakers in a small stereo system. To complement your system, choose from our range of Powercube powered subwoofers for the perfect Home Cinema experience. Thank you for purchasing Wharfedale. We hope your loudspeakers will give you a rewarding listening experience for many years.

**Please read these instructions carefully before installing your Wharfedale loudspeakers.**

Before making connections to any part of your sound system make sure the amplifier and all connected sources are switched off.

When you switch on your system or change sources, set the volume control to minimum and turn up the level gradually.

DO NOT use your amplifier at full volume. The position of the Volume Control is NOT a reliable guide as to the maximum volume level or capabilities of your sound system. Playing the system with extreme high settings of volume and tone controls will result in distorted sound and may damage the

### Preparing and Connecting Your Loudspeakers

#### Unpacking the Speakers

Carefully remove each loudspeaker from its packing carton. Be especially careful when removing the polythene bag.

DO NOT attempt to lift the loudspeaker by the polythene bag.

Retain the packing for future use. If you decide to dispose of the packing, please do so safely.

#### Fitting the Plinth and Spikes (CR 30, CR 40)

Carefully invert each loudspeaker. Protect the top surface from scratches or damage when the loudspeaker is in the inverted position.

Each loudspeaker has four spikes. Prepare the spikes as shown and screw them into the threads on the base of the loudspeaker. Return the loudspeaker to its normal position taking care not to cause damage with the spikes. When moving speakers, be careful not to let the spikes pierce objects or cables which may be concealed under the carpet. Never drag loudspeakers. If you cannot lift them easily, get someone to assist you.

#### Stands and Brackets

The CR 8, 10 and 20 are intended primarily for stand mounting, though they can be mounted on wall brackets or even on sturdy shelves. The quality of loudspeaker stands makes a considerable difference to the performance of your loudspeakers so do not use flimsy inferior products.

#### CR CEN Centre Channel Loudspeaker

A set of self adhesive pads is provided. Peel off the backing material and fix a pad close to each corner of the bottom surface of the loudspeaker.

#### Choosing and Preparing Cables

Specialist audio cable usually offers better performance than general purpose 'bell' or 'zip' wire.

Choose a cable of suitable diameter - cable that is too thin will limit the dynamics of the sound and may impair the bass response. Audio cable is polarised, with two cores of different colours, or often a raised rib or coloured tracer in the case of twin cable.

Split the twin cores to a depth of about 40mm. Carefully strip the insulation from each end, leaving about 10mm of bare wire. If the cable is stranded, lightly twist to gather any loose strands.

amplifier and loudspeakers.

DO NOT connect loudspeaker terminals to the mains supply.

Ensure that all loudspeakers in the system are correctly wired and are in phase.

DO NOT subject your loudspeakers to excessive cold, heat, humidity or sunlight.

**WARNING:** To reduce the risk of fire or electrical shock do not expose this product to rain or moisture. The product must not be exposed to dripping and splashing and no object filled with liquids such as a vase of flowers should be placed on the product.

No naked flame sources - such as candles - must be placed on the product.

DO NOT place heavy objects on top of loudspeaker cabinets.

NEVER let anyone, especially children push anything into holes, slots or other opening in the case.

NEVER touch the drive units which are easily damaged. If you wish to play your loudspeakers with their grilles removed be careful to protect the drive units from children and pets.

DO NOT use makeshift stands. Always fit a manufacturer's approved stand according to the instructions and using the fixings provided. Your dealer will advise you.

#### Crossover Networks

Crystal loudspeakers use a specially designed bi-wireable crossover panel with four terminal binding posts. Please follow the drawing carefully to see the correct orientation of the loudspeaker terminals. The upper terminals connect to the treble unit, the lower pair to the bass unit. As supplied, the treble terminal pair is connected to the bass terminal pair via removable metal straps. These should be left in place for standard installations.

#### Connecting Loudspeaker Terminals

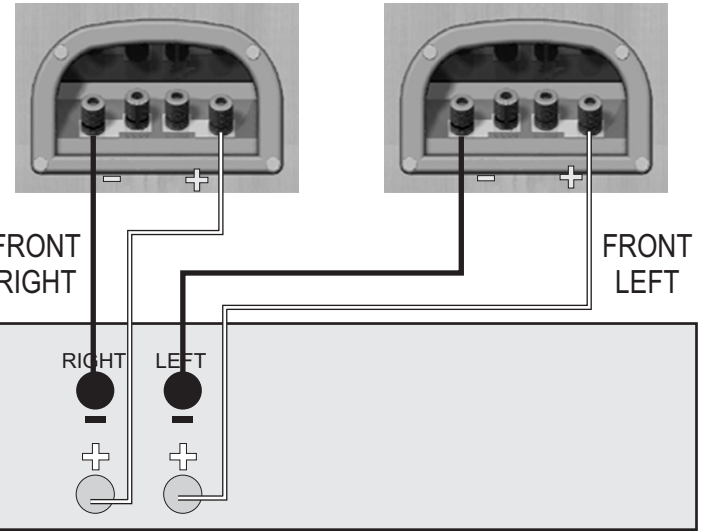
Unscrew the terminal. Thread the bared end of each cable through the hole in the bottom of the terminal post. Ensure that there are no loose strands which may touch adjacent terminals. Retighten the terminal securely. The drawing above illustrates the method.

**NOTE:** When connecting loudspeakers, the cables to left and right channels should be of equal length, regardless of the distance of the speakers from the amplifier. This applies to front and rear channels.

#### Connecting Your Loudspeakers - Standard Connections

Choose a suitable length of twin core speaker cable for each channel, and prepare the ends as described above. Unscrew each terminal a few turns but leave the straps in place.

Connect the red, positive (+) terminal of the Left loudspeaker to the corresponding red, positive (+) amplifier terminal. Connect the black, negative (-) terminals similarly. Tighten the terminals securely. Repeat this procedure for the Right Channel.

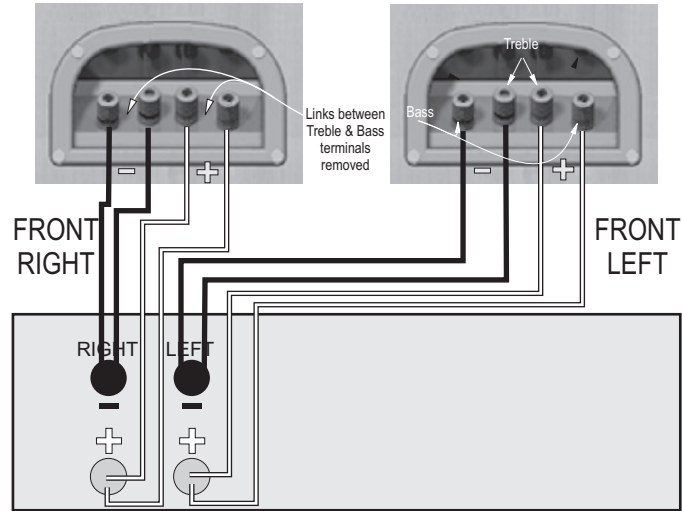


#### Connecting Your Loudspeakers - Bi-Wiring

Using separate cables for treble and bass units in a Bi-Wiring configuration reduces intermodulation effects and improves headroom and clarity. To bi-wire, you will need to install two lengths of twin core cable between the amplifier and each loudspeaker.

Unscrew each terminal a few turns and remove the metal straps. Connect the cables between the amplifier and the loudspeakers as indicated above and re-tighten all the terminals securely.

**Note:** Some amplifiers have two pairs of output terminals to facilitate bi-wiring but this is not essential. The advantages of bi-wiring are fully retained if your amplifier has only one pair of output terminals per channel (as in the illustration).

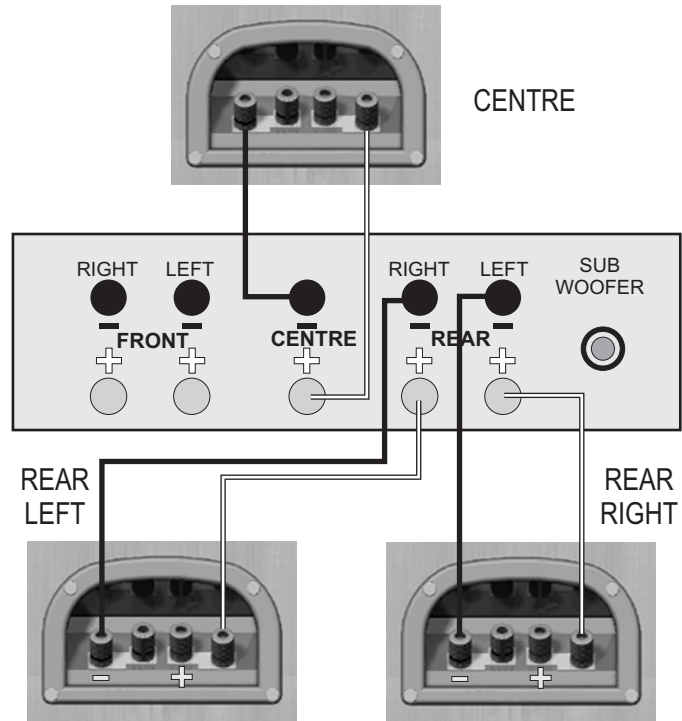


#### Bi-Amplifying (Bi-Amping)

By connecting each loudspeaker drive unit to its own dedicated amplifier the advantages of Bi-Wiring can be extended. If you own two identical stereo power amplifiers, your Crystal speakers may be Bi-Amped. For further details please consult your dealer.

#### Centre Channel and Surround Connections

The CR CEN and rear surround loudspeakers are intended for use specifically with Audio Visual equipment having Centre and Rear loudspeaker outputs. Connect these loudspeakers as shown, again observing polarity. The speakers may be connected as shown, or bi-wired.

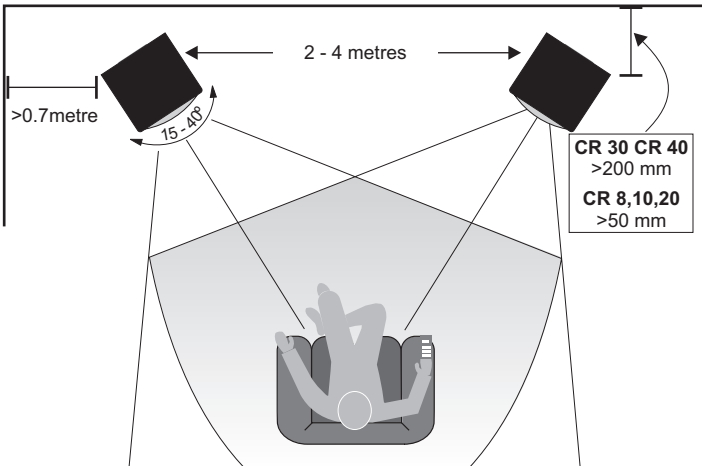


### Positioning Your Lourspeakers

#### Conventional Loudspeakers

Models CR 30 and 40 are designed to be floor standing. We suggest that they are positioned at least 200 mm from the rear walls and 700 mm from the side walls, facing slightly inwards. Models CR 8, 10 and 20 should ideally be stand or wall mounted though they may be placed on a rigid shelf. The bass extension will improve if these speakers are operated closer to the rear walls. A useful rule of thumb is that the listener should be as far from the loudspeakers as they are from each other.

If the loudspeakers are placed too close to the walls the bass will increase but may be boomy and indistinct. If the loudspeakers are placed further away from the walls, the inward angle may be increased by up to 40%, although this may restrict the width of the optimum listening position. The speakers should ideally be positioned so that the treble units are roughly at ear level to a seated listener. As personal taste plays a large role, experiment with different configurations and play a wide range of programmes before finalising the position of your speakers.



#### CR CEN Centre Loudspeaker

The loudspeaker should be positioned centrally between the loudspeakers close to the television and mounted either above or below the screen.

The loudspeaker should be located on a stable flat surface to avoid any danger of the cabinet moving when it is vibrated by high sound levels. If you mount the unit on top of the television, move it forward so that the front grilles are level with or slightly in front of the screen. This will reduce reflections from the screen and the top of the cabinet.

Although you can place the centre channel loudspeaker under the TV monitor, this should always be regarded as second best. The preferred position is always above the monitor, as shown.

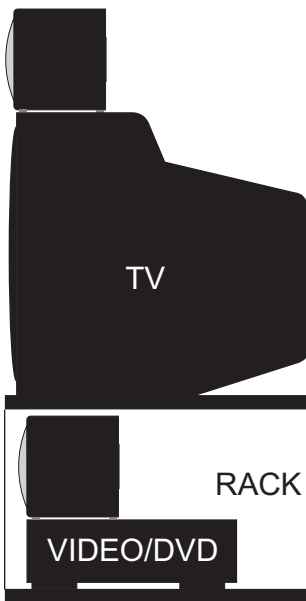
The CR CEN uses screened drive units and may be placed close to a TV screen without ill-effects.

Conventional loudspeakers should not be operated within 500mm of a TV screen as the drive unit magnets may interfere with the picture and cause colour distortion.

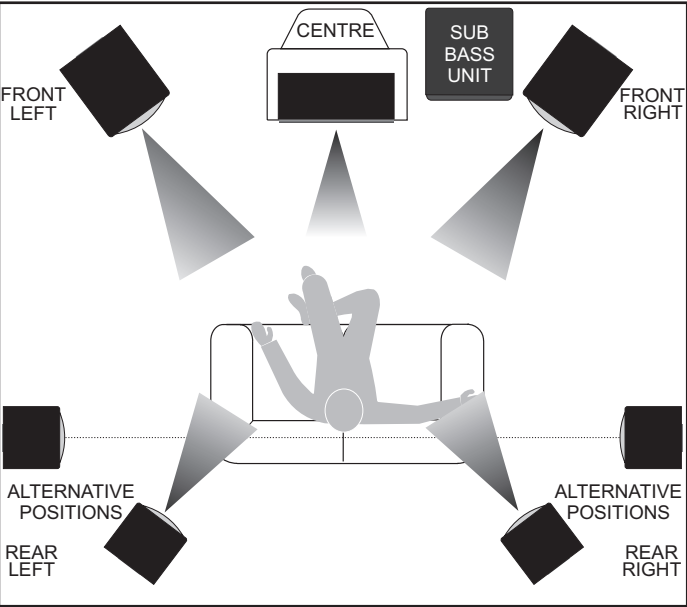
#### Caution - Connecting Wires

When connecting your loudspeakers, avoid trailing cables across open floor spaces where they can be a source of danger.

Route cables safely under carpets or along room boundaries.



### The Home Theatre Environment



#### Front and Effects Channels

The front loudspeakers are placed on either side of the television screen, 2 to 3 metres apart. The speakers should be angled slightly so they are aimed towards the listeners.

As the rear surround channels are the 'effects' channels the reproduced sound should be as room filling as possible. We recommend placing the speakers in a high position, behind the listener's head and angled towards the listener. If the rear wall is more than 1 metre behind the listening seat, position the units on the side walls. If the walls are a long way from the listening seat, consider stand mounting.

Most of the dialogue comes from the centre loudspeaker. Speech should appear to originate from the actors' mouths. Operating height is important. Ideally the front and centre channel speakers should be at the same height. For this reason the centre channel speaker is best operated on top of the TV monitor. The front faces of the centre and surround loudspeakers should also be in line as far as possible.

#### Subwoofer

As the ear is unable to detect the direction from which deep bass originates, this allows you freedom to position the unit. Varying the distance from the wall alters the bass. Placing the subwoofer across a corner boosts the bass but may impair clarity.

The performance of Home Theatre systems can often be enhanced by using a pair of subwoofers.

#### Setting Loudspeaker Sizes

Many digital AV Processors require you to specify the size of speakers in all channels.

Always choose 'Small' for the Surround channels and Centre channel whether you are using a subwoofer or not.

**If you are not using a subwoofer:** Set the Front Speakers to 'Large'. Set the 'Subwoofer' option on the processor to 'Off' or 'No'. The Front channels will now receive all the system bass.

**If you are using a subwoofer:** When set to 'Small' all the system bass will go into the subwoofer. If you choose 'Large' the Front channel bass will be reproduced from the Front speakers. Bookshelf speakers should be set to 'Small', large floor standing units may be set to 'Large'.

#### Setting Levels

Once the loudspeaker settings have been finalised, put the AV amplifier into its "Test" mode (see instructions supplied with your processor). Adjust the level of each channel in turn until all channels are reproduced at equal loudness.

On some programme material the surround channel may seem lower than the front. Do not readjust this level. You may, however, need to adjust the subwoofer output level. Avoid setting too high a level or you will swamp the sound with bass which be tiring to listen to and may limit the subwoofer's ability to respond to large bass transients. You should also set a sensible level going into the subwoofer from the AV processor.

#### Delay Settings

Many AV processors feature delay settings to enable surround and dialogue information to arrive at the listener's ears at the same time as the Front channels, even when the listening seat is in a non-ideal position.

**Rear Delay:** If the listening position is equidistant from the Front and Rear speakers, set a low delay setting. The closer the listener is to the Rear speakers the higher should be the delay setting used.

**Centre Delay:** If the Centre speaker is level with (or slightly behind) the Front speakers, set the delay to zero. If the Centre speaker is forward of the Front speakers, increase the delay.

#### LFE

In the cinema the Low Frequency Effects channel is an extra bass channel with its own subwoofer and not a regular subwoofer channel. In domestic systems the LFE channel typically feeds into the subwoofer. Where no subwoofer is used, the LFE signal is combined with Front Channel information. When you set the LFE level at your AV processor, use care as the powerful low frequencies can overload domestic loudspeakers.

If you hear popping or thumping noises coming from the front loudspeakers or subwoofer, immediately turn the AV Processor's volume level down and then back off the LFE level. This should cure the problem. If it does not, back off the volume level at the subwoofer (if you are using one) until the problem disappears.

Please read the relevant sections of your AV amplifier manual and familiarise yourself with the various issues. If you are unsure, consult your dealer for help.

#### Phase

A Home Theatre system should have a precise front stage, a diffuse rear stage and good localisation of dialogue. If the colours on the loudspeaker terminals do not correspond with those on the amplifier, the sound will appear poorly focussed or 'out of phase'. For this reason it is essential that the speakers are connected according to the wiring diagrams in this manual.

### Care and Maintenance

#### Hiding Cables

When mounting a loudspeaker on a wall the connecting cables may be unacceptably obvious. Whilst cables can be routed from the loudspeaker to the floor, it may be less obtrusive to route cables from the loudspeaker to the ceiling and then within the ceiling (or possibly coving) or immediately underneath the ceiling (or coving). The cable may then return to floor level at a convenient room corner.

#### Running In

Loudspeakers are electro-mechanical and, like all mechanical systems, they need a 'running in' period. For the first 50 hours or so exercise care and play your system at reasonable volume levels. After running in, you will notice a significant sonic improvement.

#### Cleaning

The loudspeaker cabinets can be cleaned with a damp cloth or with a spray furniture polish and a soft cloth. Apply the spray sparingly to the cloth and then polish the cabinet. Never apply spray directly to the cabinet. Grilles should be removed and gently brushed with a soft brush.

#### Guarantee & Service

In the unlikely event that your unit develops a fault you should return it to your Wharfedale dealer using the original packing to ensure safe shipping.

The terms of your guarantee may vary in different countries but in all cases the guarantee excludes:

All damage caused through accident, misuse, wear and tear, neglect, incorrect installation, adjustment or repair by unauthorised personnel.

Liability for damage or loss occurring in transit to or from the purchaser.

Wharfedale will not be liable for any consequential damage, loss or injury, arising from or in conjunction with this equipment.

#### Conclusion

The Crystal series is just one of an extensive and world-acclaimed range from Wharfedale, one of the world's oldest and most distinguished loudspeaker manufacturers. Thank you for purchasing Wharfedale; we hope this product brings you many years of reliable service and good music.